

**Amendments To The Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of claims:**

---

*B1*  
1-7. (Cancelled).

8. (Presently amended) A mutagenesis method of a gene of a vertebrate animal, comprising the steps of:

- a) treating a germ cell of the vertebrate animal with a psoralen derivative;
- b) irradiating the germ cell with a high energy beam; and
- c) subjecting the irradiated germ cell to artificial fertilization to induce mutagenesis of a gene in an embryo of a vertebrate animal.

9. (Previously added) A method according to claim 8, wherein the germ cell is sperm.

10. (Previously added) The method of claim 8 or 9 wherein the psoralen derivative is 4,5',8-trimethylpsoralen.

11. (Previously added) The method of claim 8 or 9 wherein the psoralen derivative is 4,5',8-trimethylpsoralen and the vertebrate animal is zebrafish.

12. (Previously added) The method of claim 8 or 9 wherein the mutagenesis is introduced into a region containing a pyrimidine base.

13. (Presently amended) A method for preparation of a mutated gene of a vertebrate animal, comprising the steps of:

a) treating a germ cell of the vertebrate animal with a psoralen derivative;  
b) irradiating the treated germ cell with a high-energy beam; and  
c) subjecting the irradiated germ cell to artificial fertilization to induce mutagenesis  
of a gene in an embryo of a vertebrate animal.

14. (Previously added) The method of claim 13, wherein the germ cell is sperm.

15. (Previously added) The method of claim 13 or 14 wherein the psoralen derivative is 4,5',8-trimethylpsoralen.

16. (Previously added) The method of claim 13 or 14 wherein the psoralen derivative is 4,5',8-trimethylpsoralen and the vertebrate animal is zebrafish.

17. (Previously added) The method of claim 13 or 14 wherein the mutagenesis is introduced into a region containing a pyrimidine base.

18. (Presently amended) A method for analyzing the function of a gene of a vertebrate animal, comprising the steps of:

a) treating a germ cell of the vertebrate animal with a psoralen derivative;  
b) irradiating the treated germ cell with a high-energy beam;  
c) subjecting the irradiated germ cell to artificial fertilization to induce mutagenesis  
of a gene in an embryo of a vertebrate animal;  
d) expressing a mutated gene; and  
e) examining the correlation between the mutated gene and the-a mutant phenotype.

19. (Previously added) The method of claim 18, wherein the germ cell is sperm.

20. (Previously added) The method of claim 18 or 19 wherein the psoralen derivative is 4,5',8-trimethylpsoralen.

B/

21. (Previously added) The method of claim 18 or 19 wherein the psoralen derivative is 4,5',8-trimethylpsoralen and the vertebrate animal is zebrafish.

22. (Previously added) The method of claim 18 or 19 wherein the mutagenesis is introduced into a region containing a pyrimidine base.

---